

## APPENDIX B

### WETLAND DELINEATION

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August 25, 2003

Mr. John Eliason  
Development Services Manager  
King County Housing Authority  
600 Andover Park West  
Tukwila, Washington 98188

RE: Park Lake Homes – Off-site Wetland Delineation  
(R.A.I. # 2002-054-001)

Dear Mr. Eliason:

The purpose of this letter is to document the results of our December 20, 2002 wetland investigation and delineation of the wetland known locally as the White Center Pond and in the King County (1991) Wetland Inventory as Salmon Creek 1, located off-site along the west property boundary of the Park Lake Homes housing development. This report provides technical baseline data for use in site planning for the Park Lake Homes 2001 Hope VI project.

## **PROJECT SITE**

Park Lake Homes is an approximately 95-acre site located on SW Roxbury Street in unincorporated King County, Washington. The site is located in Section 6, Township 23 North, Range 4 East, W.M. The adjoining property located west of the Park Lake Homes site is owned and managed by King County as a park and regional control facility. The limits of our study area were defined by SW Roxbury Street on the north, SW 100<sup>th</sup> Street on the south, the fenced backyards of single family residences located on the west side of the King County park, and the Park Lake Homes property on the east. The property boundaries for the Park Lake Homes site were not marked in the field at the time of our December 20, 2002 investigation. Thus, we estimated the property boundary based on the western limits of developed home sites adjoining the King County park property.

## **METHODS**

We based our investigation upon the guidelines of the COE Wetlands Delineation Manual (Environmental Laboratory 1987), as revised in the Washington State Wetlands Identification and Delineation Manual published by the Washington Department of

Ecology (WDOE 1997). The WDOE wetlands manual is required by state law for all local jurisdictions (including the King County), is consistent with the 1987 COE Wetlands Delineation Manual (Environmental Laboratory 1987) with respect to wetland identification and delineation, and incorporates subsequent amendments and clarifications provided by the COE (1991a, 1991b, 1992, 1994). We used the "Routine Determination" method (with on-site inspection), as outlined in the COE Wetlands Delineation Manual (Environmental Laboratory 1987), by examining vegetation, soil, and hydrologic characteristics in representative areas of the site.

Generally, as outlined in the COE Wetlands Delineation Manual (Environmental Laboratory 1987), wetlands are distinguished by three diagnostic characteristics: hydrophytic vegetation (wetland plants), hydric soil (wetland soil), and wetland hydrology. In general, hydrophytic vegetation is present when "more than 50 percent of the dominant species are OBL, FACW, or FAC on lists of plants species that occur in wetlands" (Environmental Laboratory 1987:19). Plants are rated, from highest to lowest probability of occurrence in wetlands, as obligate (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and upland (UPL) (Reed 1988, 1993). Hydric soil indicators include, but are not limited to: (1) gley conditions, (2) mottling in a low chroma matrix, (3) histic (organic) soils, and (4) saturated or inundated conditions. In order for an area to have wetland hydrology according to the 1987 manual, soils must be saturated within a major portion of the vegetation rooting zone (usually within 12 inches of the surface) for at least 5 percent of the growing season (Environmental Laboratory 1987, U.S. Army Corps of Engineers 1991b, 1992).

## **BACKGROUND REVIEW**

We collected and analyzed available information for the site prior to our field investigation. We collected maps and information from the U.S. Fish and Wildlife (USFWS 1987) National Wetlands Inventory (NWI), The King County (1990) Sensitive Areas Map Folio, the King County (1991) Wetland Inventory, and the U.S.D.A. Soil Conservation Service (SCS) Soil Survey (Snyder et al. 1973, Poulsen et al. 1952).

## **FIELD SAMPLING PROCEDURES**

On December 20, 2002, Raedeke Associates, Inc. staff investigated the study area to identify, delineate, and describe any wetlands located on King County property adjoining the west boundary of the Park Lake Homes site. During our field investigations, we used information from the background studies to assist us in the examination of the study area.

Vegetation, soils, and hydrology were examined in representative portions of the site. Plant communities were inventoried, classified, and described by field inspection.

General vegetation patterns were noted; scientific nomenclature of plant species generally follows Hitchcock and Cronquist (1976), as updated by Pojar and MacKinnon (1994), Hickman (1993), and Cooke (1997). Wetland classification follows the USFWS wetland classification system (Cowardin, et al. 1992). The delineated wetland was rated using the King County (2001) Zoning Code. Table 1 of this report provides the scientific and common names, as well as WIS ratings, for all plants encountered on this part of the site.

We excavated soil pits to at least 18 inches below the soil surface where possible to describe the soil and hydrologic conditions in both wetland and non-wetland areas. Soil colors were determined using the Munsell Soil Color Chart (Munsell Color 2000). We sampled soils at locations that generally corresponded with vegetation sampling areas.

Wetland boundaries were established based on the presence of hydric soil, hydrophytic vegetation, and indicators of wetland hydrology. Topographic changes within the context of the landscape were used to aid in the placement of the wetland boundaries. We placed pink and black diagonally-striped plastic flagging to represent the eastern outer edge the wetland. The western boundary of the wetland was not delineated. The boundaries of the wetlands were surveyed in the field by professional surveyors at Goldsmith & Associates.

## **RESULTS**

### **BACKGROUND INVESTIGATION**

Both the USFWS NWI (1987) map, Seattle, South Quadrangle and the King County (1990) Sensitive Areas Folio indicate that a wetland is located just to the west of the Park Lake Homes site. The NWI (1987) indicates that the wetland consists of palustrine, forested and scrub-shrub vegetation classes that are seasonally flooded, and an open water vegetation class that is permanently flooded. The King County (1990) Sensitive Areas Map Folio depicts this wetland as Salmon Creek 1. The King County (1991) Inventory has rated Salmon River 1 as a King County (2001) Class 2 wetland that consists of scrub-shrub and open water vegetation classes. Background information regarding the soils of the study area was unavailable, as the Soil Survey of the King County Area (Snyder et al. 1973, Poulsen et al. 1952) does not map units within or in the urbanized vicinity of the City of Seattle.

### **WETLAND DELINEATION AND DESCRIPTION**

In general, the wetland is located at the toe of a west-facing slope that ranges from 100 to 200 feet in width from east to west and ranges from 20 to 40 percent in steepness. The slopes are densely vegetated with forest species including Douglas-fir, Pacific madrone, red alder, black cottonwood, salal, oceanspray, Himalayan blackberry, and evergreen blackberry. The delineated portion of the wetland consists of an interspersed of forested,

scrub-shrub, and emergent vegetation classes. The investigated portion of the wetland begins approximately 150 feet south of SW Roxbury Street and extends southward to SW 100<sup>th</sup> Street. Water flows into the north end of the wetland from a 36-inch concrete pipe. Water flows southward through the wetland to a culvert beneath SW 100<sup>th</sup> Street. The wetland appears to continue southward from SW 100<sup>th</sup> street based on our observation of the presence of hydrophytic vegetation such as willow, hardhack spirea, and reed canarygrass and the presence of wetland hydrology including areas of inundation beneath the existing vegetation. Our observations correspond to the approximate mapped extent of the wetland according to the USFWS (1987) NWI. An elevated asphalt walking path bisects the wetland from east to west approximately 500 feet north of SW 100<sup>th</sup> Street. Water passes beneath the path through an approximately 18-inch concrete pipe. A stormwater control structure is located north of SW 102<sup>nd</sup> street. Wetland flows are controlled at this point and conveyed south to Mallard Lake.

### ***Vegetation***

Forested portions of the wetland are located in the northernmost portion of the wetland near SW Roxbury Street and also to the south near SW 100<sup>th</sup> Street. These areas are dominated by an overstory of Pacific willow, red alder, and black cottonwood over herbaceous vegetation that is dominated by reed canarygrass, soft rush, creeping buttercup, and slough sedge. Shrubs are widely scattered within the understory and are not present in sufficient density to constitute a separate strata. Scrub-shrub areas are interspersed throughout the wetland, and are dominated by Pacific willow, red-osier dogwood, Himalayan blackberry, and reed canarygrass. Emergent areas are also interspersed throughout the wetland, and are dominated by reed canary grass, red top, common velvet-grass, cattail, and creeping buttercup. A majority of the dominant species present within the delineated portion of the wetland are hydrophytic; thus, the delineated area meets the hydrophytic vegetation criteria of the COE Wetland Delineation Manual (Environmental Laboratory 1987, WDOE 1997).

### ***Soils and Hydrology***

Soils throughout the delineated portion of the wetland consist of either mineral soils having a matrix chroma of 1, soils with a matrix chroma of 2 or less with redoximorphic features such as mottles, or buried organic soils consisting of up to 16 inches of chroma 1 mineral soil of over greater than 12 inches of peaty muck. Soils within the wetland were different from soils in the adjacent uplands, which consisted generally of brighter mineral soils with a matrix chroma of 3 with mottles. All of the observed soils within the delineated area meet the hydric soil criteria of the COE Wetland Delineation Manual (Environmental Laboratory 1987, WDOE 1997).

Water was present at the time of our December 20, 2002 site visit at the surface to a depth of up to six inches throughout a majority of the delineated portion of the wetland as areas of shallow ponding and scattered puddles. Areas that were not inundated were saturated

to the surface. The delineated portion of the wetland meets criteria for wetland hydrology (Environmental Laboratory 1987, WDOE 1997).

## **WETLAND DETERMINATION AND CLASSIFICATION**

Based on our observations, positive indicators for each of the three wetland parameters were present at the time of our December 20, 2002 site investigation; therefore, the delineated wetland meets the necessary criteria for designation as a wetland according to the guidelines of the COE delineation manual (Environmental Laboratory 1987).

The wetland consists of a mosaic of cover classes, including palustrine, forested, broad-leaved, deciduous (PFO1), palustrine, scrub-shrub, broad-leaved, deciduous (PSS1), and palustrine, emergent, persistent (PEM1) cover, according to the USFWS wetland classification system (Cowardin et al. 1992). The NWI (1987) indicated that a palustrine, open water vegetation class was present and the King County Wetland Inventory (1991) indicated that a palustrine aquatic bed vegetation class was present; however, these were not observed by Raedeke Associates, Inc. staff at the time of our December 20, 2002 site investigation.

## **REGULATORY CONSIDERATIONS**

Wetlands and streams are protected by Section 404 of the Federal Clean Water Act and other state and local policies and ordinances, such as the King County (2001) Zoning Code. Regulatory considerations pertinent to this property are briefly discussed below, but this discussion should not be considered comprehensive. Additional information may be obtained from agencies with jurisdictional responsibility for, or interest in, the site.

### **FEDERAL CLEAN WATER ACT (U.S. ARMY CORPS OF ENGINEERS)**

Federal law (Section 404 of the Clean Water Act) generally discourages the discharge of dredged or fill material into the nation's waters, including many wetlands, without a permit from the COE. The COE makes the final determination as to whether an area meets the federal definition of a wetland (Federal Register 1986:41251), and thus, if it is under their jurisdiction.

We caution that the placement of fill within wetlands or other Waters of the U.S. without authorization from the COE is not advised. As the COE makes the final determination regarding permitting under their jurisdiction, we recommend requesting a jurisdictional determination from the COE prior to any construction activities, if any modification of wetlands is proposed. A jurisdictional determination would also provide evaluation and confirmation of our wetland delineation by the COE.

## **KING COUNTY WETLAND REGULATIONS**

King County regulates wetlands and streams as sensitive areas in unincorporated portions of the county under Chapter 21A.24 of the King County (2001) Zoning Code. Alterations of wetlands or streams and their buffers are generally prohibited, except as allowed under certain conditions specified in the ordinance. Wetlands are rated as Class 1, 2, or 3, based on characteristics such as size, number and type of vegetative cover types (i.e., habitat complexity), and presence (or absence) of endangered or threatened species. The County code typically requires provision of undisturbed buffers of 100, 50, and 25 feet around the perimeter of Class 1, 2, and 3 wetlands, respectively. In special circumstances, as determined by King County, buffer widths may be increased to protect wetland resources or averaged to accommodate development proposals.

The delineated wetland would likely be rated as Class 2 by King County because it has three or more classes of vegetation and is greater than 1 acre in size, but lacks open water (King County 2001). Under ordinary circumstances, Class 2 wetlands are given a 50-foot buffer, plus the appropriate building setback (usually 15 feet) per King County (2001) code. However, for wetlands within 25 feet of the toe of a slope of between 30 percent and 40 percent, King County (2001, 21A.24.320.A(5)) requires either an additional 25 foot setback beyond the minimum wetland buffer or an additional 25 foot setback beyond the top of the slope, depending on whether the slope extends beyond the standard wetland buffer. In this case, portions of the wetland lie at the toe of a 30-40 percent slope that extends beyond the standard wetland buffer. So, the code would require a 75-foot wetland buffer for these portions of the wetland. If the slope is greater than 40 percent, then the buffer for steep slopes as measured outward from the top of the slope would apply, either 50 feet or as determined by a special study. We should caution that King County staff has the final authority to determine ratings, buffers, and allowed uses of wetlands (and other sensitive areas) under their jurisdiction in the context of a specific development proposal.

We caution that King County is in the process of revising its Zoning Code (Title 21A), including a draft Critical Areas Ordinance and a draft Stormwater Ordinance (King County 2002). Included in the proposed revisions is a four-tier wetland rating system (Category I, II, III, or IV) under which the on-site wetland could potentially be rated as Category I because it includes a forested vegetation class that may be considered to provide irreplaceable wetland functions. As currently drafted, the revised code would require a 300-foot buffer and building setback on Category I wetlands (King County 2002). If, under the proposed regulations, the wetland is regulated as a Category II wetland by King County, then it could be given a 200-foot buffer plus the building setback.

## **LIMITATIONS**

We have prepared this report for the exclusive use of Huckell/Weinman Associates, Inc. and their consultants. No other person or agency may rely upon the information, analysis, or conclusions contained herein without permission from Huckell/Weinman Associates.

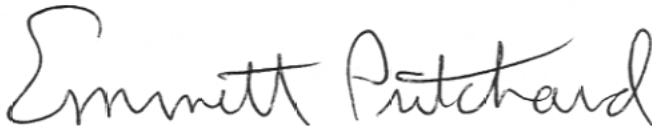
The determination of ecological system classifications, functions, values, and boundaries is an inexact science, and different individuals and agencies may reach different conclusions. With regard to wetlands, the final determination of their boundaries for regulatory purposes is the responsibility of the various resource agencies that regulate development activities in wetlands. We cannot guarantee the outcome of such agency determinations. Therefore, the conclusions of this report should be reviewed by the appropriate regulatory agencies prior to any detailed site planning or construction activities.

We warrant that the work performed conforms to standards generally accepted in our field, and that this work was prepared substantially in accordance with then-current technical guidelines and criteria. The conclusions of this report represent the results of our analysis of the information provided by the project proponents and their consultants, together with information gathered in the course of this study. No other warranty, expressed or implied, is made.

Thank you for the opportunity to prepare this material for you. If you have any questions, please do not hesitate to call us at (206) 525-8122.

Respectfully submitted,

RAEDEKE ASSOCIATES, INC.

A handwritten signature in black ink that reads "Emmett Pritchard". The signature is written in a cursive, flowing style.

Emmett Pritchard  
Wetland Ecologist



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Table 1. Scientific and common names of plants with assigned Wetland Indicator Status (WIS) (Reed 1988, 1993). Scientific names from Hitchcock and Cronquist (1976), Pojar and MacKinnon (1994), Hickman (1993), and Cooke (1997).

Scientific Name <sup>1</sup>	Common Name	WIS <sup>1, 2</sup>
<b>TREES</b>		
<i>Alnus rubra</i>	Red alder	FAC
<i>Arbutus menziesii</i>	Pacific madrone	UPL
<i>Populus balsamifera</i>	Black cottonwood	FAC
<i>Pseudotsuga menziesii</i>	Douglas-fir	FACU
<i>Salix lucida</i>	Pacific willow	FACW+
<b>SHRUBS</b>		
<i>Cornus sericea</i>	Red-osier dogwood	FACW
<i>Cytisus scoparius</i>	Scot's broom	UPL
<i>Gaultheria shallon</i>	Salal	FACU
<i>Holodiscus discolor</i>	Oceanspray	UPL
<i>Rubus discolor</i>	Himalayan blackberry	FACU
<i>Rubus laciniatus</i>	Evergreen blackberry	FACU+
<i>Salix</i> spp. <sup>⊕</sup> (s)	Willow	FACW <sup>⊕</sup>
<i>Spiraea douglasii</i>	Hardhack spirea	FACW
<b>HERBS</b>		
<i>Agrostis alba</i>	Redtop bentrgrass	FACW
<i>Agrostis gigantea</i>	Black bentgrass	FAC
<i>Carex obnupta</i>	Slough sedge	OBL
<i>Dactylis glomerata</i>	Orchardgrass	FACU
<i>Holcus lanatus</i>	Common velvet-grass	FAC
<i>Hypochaeris radicata</i>	Hairy cats-ear	FACU
<i>Juncus effusus</i>	Soft rush	FACW
<i>Phalaris arundinacea</i>	Reed canarygrass	FACW
<i>Phleum pratense</i>	Common timothy	FAC-
<i>Plantago lanceolata</i>	English plantain	FAC
<i>Ranunculus repens</i>	Creeping buttercup	FACW
<i>Taraxacum officinale</i>	Common dandelion	FACU
<i>Typha latifolia</i>	Common cat-tail	OBL

Table 1. Continued.

Scientific Name <sup>1</sup>	Common Name	WIS <sup>1, 2</sup>
<i>Viola</i> spp.#	Violet	--

<sup>1</sup> = The following codes are used:

⊕ = Genera with species having a narrow range of WIS ratings that were averaged and were then included in our vegetation plot calculations.

# = Genera with species having a wide range of WIS ratings, not included in our vegetation plot calculations.

(s) = Sapling

<sup>2</sup> = WIS ratings with a minus symbol are considered “drier”, while the plus symbol indicates “wetter” species. Plants not identified to species are shown with the WIS range for the species common to this region.